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IS 12101 (1987): Roller Type Hold-Back Device [MED 6: Continuous Bulk Conveying, Elevating, Hoisting Aerial Ropeways and Related Equipment]

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Indian Standard

SPECIFICATION FOR ROLLER TYPE HOLD-BACK DEVICE

1. Scope — Specifies the dimensions and general requirements of roller type hold-back devices generally used in conveyors, elevators and similar equipments to arrest the backward movement in case of power failure or breakdown.

1.1 These devices are generally used in the output shafts.

2. Nomenclature — Nomenclature of components of roller type hold-back device shall be as given in Fig. 1.

3. Material — Different components of roller type hold-back device shall be made from the material specified in the Table 1.

TABLE 1 COMPONENTS

Nomenclature (1)	Material (Steel) Grade (2)	IS Reference for Material (3)	Hardness, *HRC* (4)
Cage	103Cr2	IS : 4398 - 1972 'Specification for carbon-chromium steel for the manufacture of balls, rollers and bearings (*first revision*)'	56-62
Rotor	103Cr2	IS : 4398 - 1972	56-62
Roller	103Cr2	IS : 4398 - 1972	58-64
Spring	55Si7	IS : 3431 - 1982 'Specification for steel for manufacture of volute, helical and laminated springs for automotive suspension (*second revision*)'	—
Keys	55C8 Class V	IS : 2004 - 1978 'Specification for carbon steel forgings for general engineering purposes (*second revision*)'	30-40
End shield	45C8 Class IV	IS : 1875 - 1978 'Specification for carbon steel billets, blooms, slabs and bars for forgings (*fourth revision*)'	38-40
Pin	40Cr1MO28	IS : 5517 - 1978 'Specification for steel for hardening and tempering (*first revision*)'	45-50
Circlip		—	—

4. Dimensions — The dimensions of the hold-back device shall be as given in Table 2 read with Fig. 1.

4.1 The dimensions of circlips shall conform to IS : 3075 (Part 2)-1987 'Dimensions for circlips: Part 2 For bores (*first revision*)'.

4.2 Where not specified, the components shall have suitable dimensions with due consideration for mating components.

5. Classification of Types — Roller type hold-back device shall be classified into four types as follows.

5.1 *Type* A — The hold-back unit fitted on the shaft end with floating cartridge with a projected lug (*see* Fig. 2).

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Gr 3

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Conveyors, Vertical Hoists and Bucket Elevators Sectional Committee, EDC 61; Conveyors Safety Subcommittee, EDC 61 : 8 [Ref : Doc : EDC 61 (4541)]

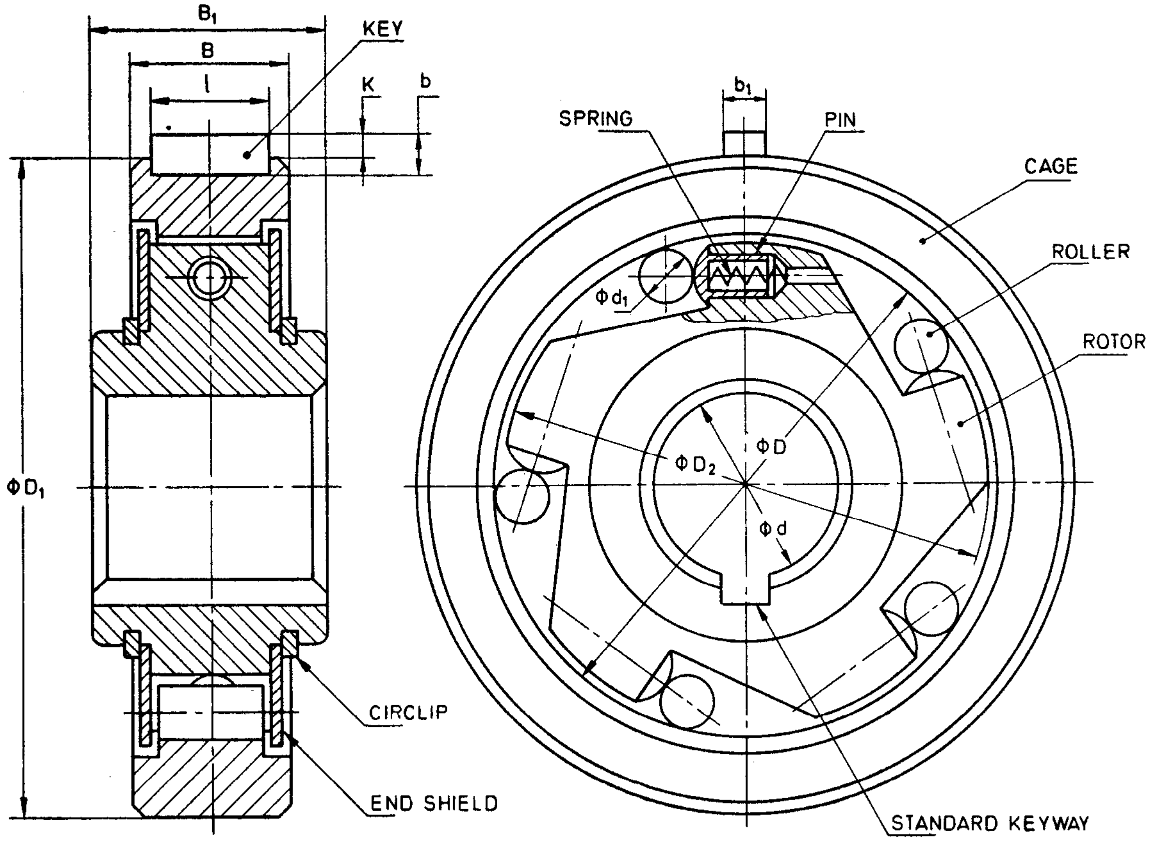

FIG. 1 NOMENCLATURE OF COMPONENTS OF HOLD-BACK DEVICE

TABLE 2 DIMENSIONS FOR HOLD BACK DEVICE

(*Clause* 4 and Fig. 1)

All dimensions in millimetres.

D H7	*d* *Max* H7	D_1 h6	d_1	*B*	B_1	D_2	*b* h11	b_1 h9	*l*	*K*	Maximum Starting Torque N.m
80	30	105	10	25 −0·15	35 +0·34	79 −0·4	6	6	18 −0·2	2·6	60
100	40	130	13	30 −0·20	45 +0·34	99 −0·4	7	8	24 −0·2	3·2	130
125	50	160	16	35 −0·25	55 +0·40	124 −0·5	7	8	28 −0·2	3·2	240
160	70	200	20	40 −0·25	60 +0·40	158 −0·5	8	12	32 −0·3	3·8	440
200	90	250	25	50 −0·30	70 +0·40	198 −0·5	8	12	40 −0·3	3·8	850

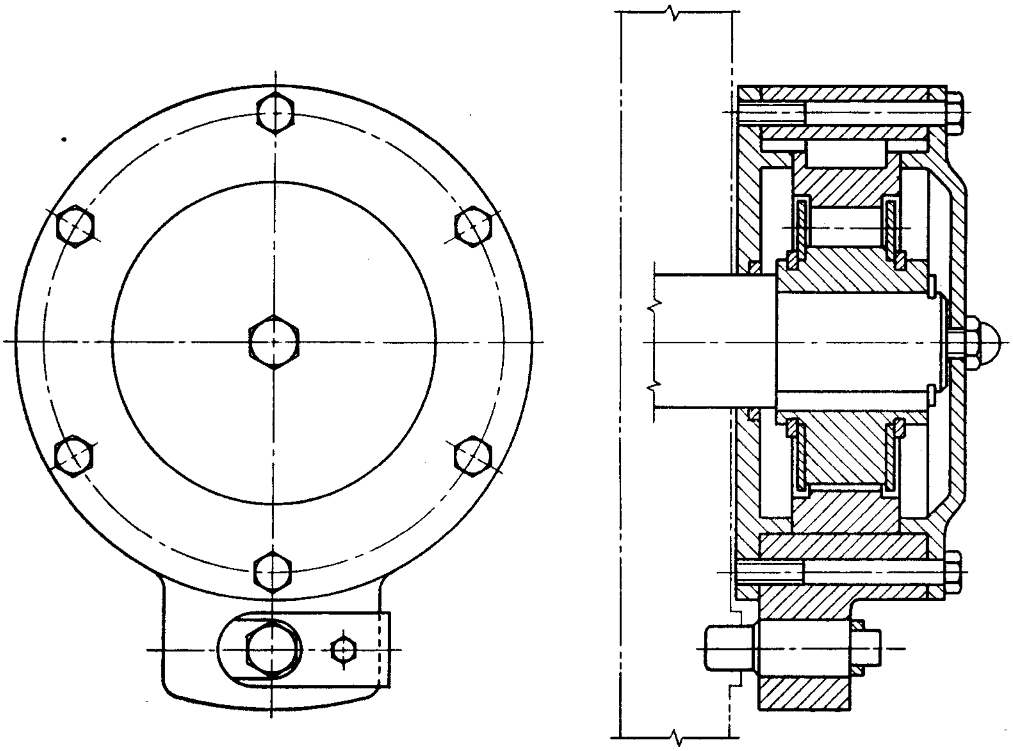

FIG. 2 TYPE A HOLD-BACK DEVICE

5.2 *Type* B — The hold-back unit with cartridge fitted on the shaft end. The cartridge, in turn, is bolted on the gearbox (*see* Fig. 3).

5.3 *Type* C — In this case, the cartridge itself works as the cage thus making the whole unit smaller. However, the cartridge material shall be the same with similar heat treatment as that of the cage (*see* Fig. 4).

5.4 *Type* D — This type of arrangement can be fixed on supporting bearing pedestals or independent pedestals of drive pulley of conveyors (*see* Fig. 5).

6. General Requirements — The hold-back device shall be properly lubricated either with oil or grease to reduce friction and consequently wear of the parts.

6.1 Hardness of various components shall be as given in Table 1.

7. Designation — A roller type hold-back device of Type A, outside diameter (D_1) 105 mm and bore (d_1) 30 mm shall be designated as:

Roller Type Hold-Back A 105 × 30

8. Marking — The hold-back device shall be punch marked with the designation and manufacturer's name or his recognized trade-mark on the side of the cage.

9. Packing — Hold-back device shall be suitably lubricated and packed to ensure protection during transit and storing.

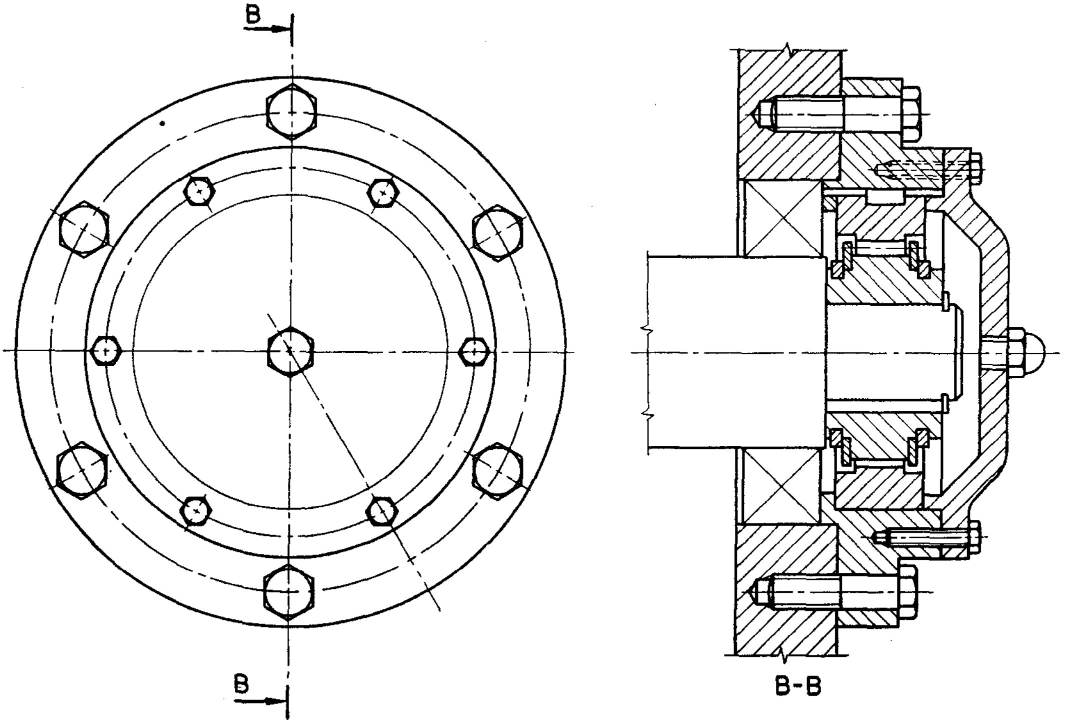

FIG. 3 TYPE B HOLD-BACK DEVICE

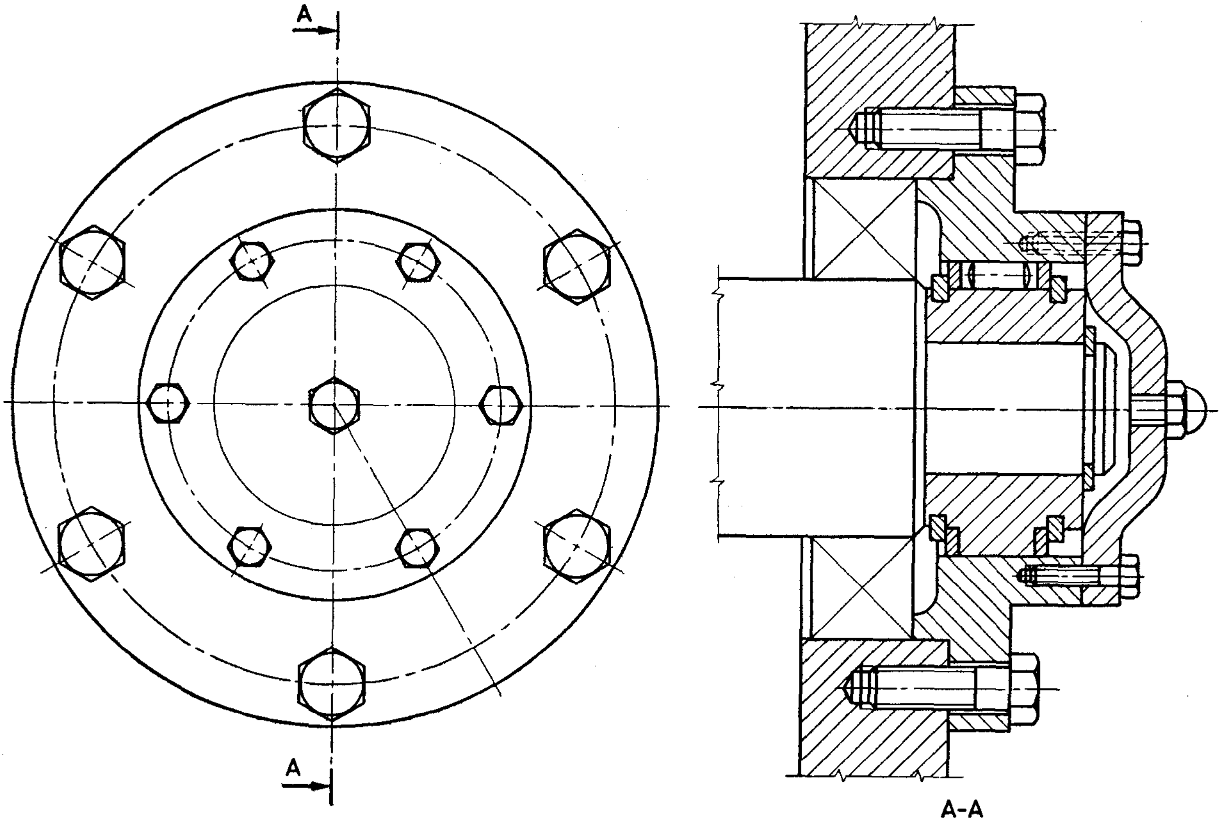

FIG. 4 TYPE C HOLD-BACK DEVICE

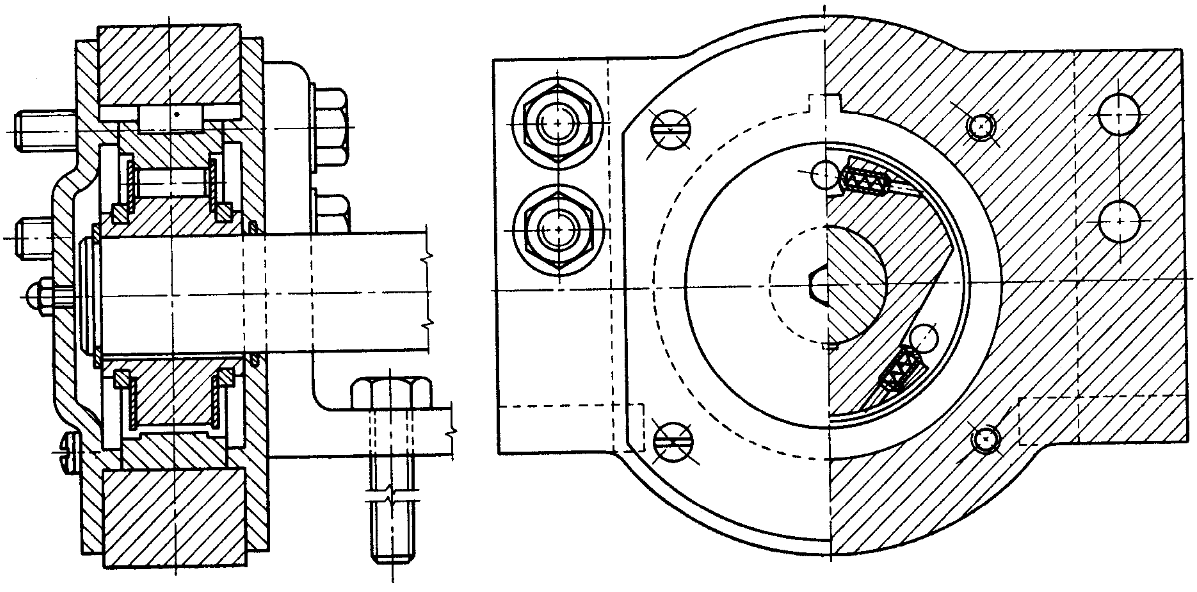

FIG. 5 TYPE D HOLD-BACK DEVICE

EXPLANATORY NOTE

The basis considered in the preparation of this standard have been the inter-plant standards followed in steel industry.

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